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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,850	02/05/2004	Thomas A. Trabold	8540G-000238	5755
27572	7590	12/09/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			MARTIN, ANGELA J	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 12/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/772,850

Applicant(s)

TRABOLD ET AL.

Examiner

Angela J. Martin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-18 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/22/05.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is responsive to the Amendment filed on September 27, 2005. The Applicant has amended claims 1 and 11; and has canceled claims 19 and 20. However, Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, this action is made final.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claims 1 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: that there is a definite angle between the sidewall and boundary element. The recitation of "width continuously decreasing along said depth of the channel in a direction generally away from said boundary element" has claim language which is broader than the specification and broader than the diagrams.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 7-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marchand et al., U.S. Pat. No. 6,649,297 B1.

Marchand et al., teach a fluid distribution assembly for use in a fuel cell (abstract) comprising a separator plate having a major face, a boundary element over the major face, and a flow field having a channel formed in the separator plate, the channel and boundary element defining a cross-sectional configuration which provides a water accumulation region (col. 3, lines 65-67 and col. 4, lines 1-5). It teaches water accumulation region is at an acute angle of the configuration (col. 8, lines 45-67). It teaches the channel comprises a ramped sidewall such that the acute angle is formed at an interface angle (Fig. 7, 8). It teaches the configuration of the channel is v-shaped (claims 19 and 20; Fig. 4, 5). It teaches the configuration is w-shaped (Fig. 5). It teaches the configuration is trapezoidal (col. 9, lines 60-64). It teaches the channel includes a recessed portion (Fig. 4, 5). It teaches the recessed portion is v-shaped (Fig. 4). It teaches a fuel cell comprising a separator, a membrane electrode assembly, wherein the sidewalls intersect the assembly to form a water accumulation region (col. 1, lines 27-46; Fig. 1). It teaches the acute angle is a function of an aspect ratio of a channel width and depth and this ratio is in the range of about 0.25 to 10 (col. 5, lines 41-44). It

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teaches at least one corner of the cross-section has an angle not greater than about 75 degrees (col. 5, lines 38-40; col. 9, lines 20-22). It teaches at least one corner has an angle in the range of 0-60 degrees (col. 9, lines 43-47). It teaches at least one water accumulation region at a bottom portion of the channel (Fig. 4). It teaches a v-shaped recess formed at bottom portion of channel (Fig. 4).

Marchand et al., do not teach the width continuously decreasing along the depth of the channel in a direction away from the boundary element; does not teach a cross-section is an equilateral or isosceles triangular cross-section.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because although it does not teach equilateral or isosceles, it does teach a triangular cross-section (col. 9, lines 60-64; Fig. 4), which would be equilateral or isosceles depending on the channel configuration and the choice of the artisan. Although Marchand et al., does not teach the width continuously decreasing along the depth of the channel in a direction away from the boundary element, the recitation of "width continuously decreasing along said depth of the channel in a direction generally away from said boundary element" has claim language which is broader than the specification and broader than the diagrams.

Response to Arguments

6. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "width continuously decreasing along said depth of the channel in a direction

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generally away from said boundary element") are not disclosed in the specification.

Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fly et al., U.S. Pat. No. 6,663,994 B1, teach a membrane electrode assembly having a convoluted shape. Gibb et al., U.S. Pat. No. 6,783,884 B2, teaches a flow field plate having triangular configurations. Dankese, U.S. Pat. No. 3,432,357, teaches a fluid distribution system with triangular and trapezoidal configurations.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AJM



PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER